

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 07-319001

(43)Date of publication of application : 08.12.1995

(51)Int.Cl.

G03B 7/00

(21)Application number : 06-138227

(71)Applicant : ASAHI OPTICAL CO LTD

(22)Date of filing : 27.05.1994

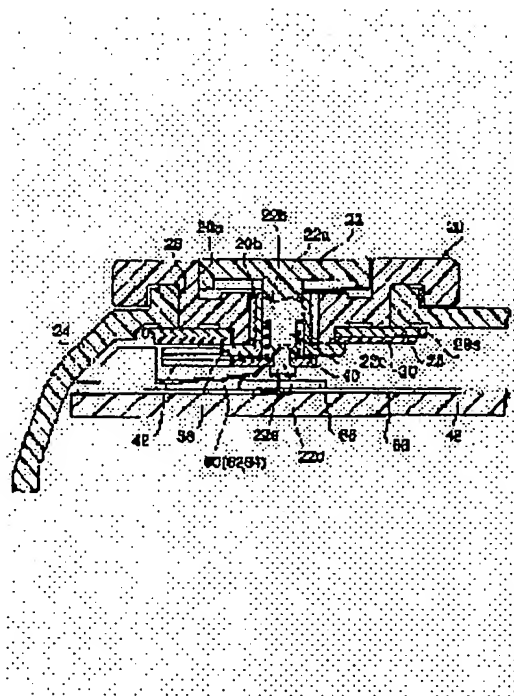
(72)Inventor : MACHIDA KATSUSHIRO
HAGA MASAOKI

(54) INFORMATION INPUT DEVICE OF CAMERA

(57)Abstract:

PURPOSE: To provide the information input device of a camera where the relation between a rotary dial and a switch to change over its function can be visually be recognized.

CONSTITUTION: This device is composed of a rotary dial 2, which is provided capably of adjustment to the camera body, and a changeover button 2, which is a push button provided at the center of the rotary dial 20. The changeover button 22 is made integrally of a disclike push operation part 22a to engage with a recess 20a, a shaft part 22b, which is made coaxially with this push operation part 22a and is set in the shaft hole 22b of the rotary dial 20, and a small-diameter part 22c, which extends from the tip of the shank 22b. On the tip side of the small-diameter part 22, a step 22d, where a plane parallel with the rotary shaft is formed in opposite two directions, is formed, and with this step 22d, the end of a lock plate 42, whose one end is fixed to the camera body, is engaged.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The revolving dial prepared possible [the rotation adjustment to a camera body], and the press control unit located in the core of said revolving dial, It has the shank which connects with this press control unit and penetrates the core of said revolving dial in the direction of a revolving shaft of said revolving dial. The push button with which the parallel flat-surface section was formed at the tip of this shank with said revolving shaft at least at one side and which it was narrow, and the level difference section was formed, and was prepared in said direction of a revolving shaft free [frequent appearance] to said revolving dial, While an end is fixed to said camera body, and the other end engages with said neck and regulating the variation rate to said direction of a revolving shaft of said push button in the range of a stroke of said push button The information input unit of the camera characterized by having a stop means to prevent rotation of the circumference of said revolving shaft of said push button in contact with said flat-surface section.

[Claim 2] The information input unit of the camera according to claim 1 characterized by establishing an energization means to energize said push button in the direction which projects from said revolving dial, between said stop means and said push buttons.

[Claim 3] The information input unit of the camera according to claim 1 characterized by forming the brush in contact with said flow pattern in said camera body while the code plate with which the flow pattern was formed along the hoop direction is formed in said revolving dial.

[Claim 4] Said push button is the information input unit of the camera according to claim 1 characterized by having the function which switches the switch which countered at the tip of said shank and was formed in said camera body by being pressed.

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the concrete structure of an information input unit of having especially a revolving dial, about the information input unit of the camera formed in order to set up information required for control of cameras, such as shutter speed and a diaphragm value.

[0002]

[Description of the Prior Art] From the former, the information input unit which sets up information, such as shutter speed and a diaphragm value, by actuation of operating members, such as a revolving dial, is used, for example in the field of a single-lens reflex camera.

[0003] Moreover, if it prepares for every function to set up a revolving dial, the equipment which can extract for example, as a SHIYYATA rate and can be used also [setup / with a value] by switching the function of a single revolving dial with a change-over switch from a device becoming complicated is also used.

[0004]

[Problem(s) to be Solved by the Invention] However, since the revolving dial and the change-over switch are left and formed in the separate location and the operating member other than these switches is generally prepared to a camera, by operating which switch, as for the conventional information input device, it is unclear whether the function of a revolving dial can be switched, and it has the problem that operability is bad.

[0005]

[Objects of the Invention] This invention is made in view of the technical problem of the conventional technique mentioned above, and aims at offer of the information input unit of the camera which the relation of a revolving dial and the switch which switches that function tends to recognize visually.

[0006]

[Means for Solving the Problem] In order for the information input unit of the camera concerning this invention to make the above-mentioned purpose attain, The revolving dial prepared possible [the rotation adjustment to a camera body], and the press control unit located in the core of a revolving dial, It has the shank which connects with this press control unit and penetrates the core of a revolving dial in the direction of a revolving shaft of a revolving dial. The push button with which the parallel flat-surface section was formed at the tip of this shank with the revolving shaft at least at one side and which it was narrow, and the level difference section was formed, and was prepared in the direction of a revolving shaft free [frequent appearance] to the revolving dial, While an end is fixed to a camera body, and the other end is narrow, engaging with the level difference section and regulating the variation rate to the direction of a revolving shaft of a push button in the range of a stroke of a push button, it is characterized by having a stop means to prevent rotation of the circumference of the revolving shaft of a push button in contact with the flat-surface section.

[0007]

[Example] The example which applied the information input unit of the camera concerning this

invention to the one eye reflex camera hereafter is explained based on a drawing.

[0008] Drawing 1 shows the appearance of the one eye reflex camera 10 concerning an example. The one eye reflex camera 10 concerning an example consists of a camera body 12 and a taking lens 14 attached in the camera body 12 removable.

[0009] While the Main slide switch 16 is formed in the one side of the top face of a camera body 12, the release carbon button 17 is formed in grip section 12a of the other side.

[0010] Behind the release carbon button 17, the information input unit 18 which consists of a revolving dial 20 prepared possible [rotation adjustment] to the camera body 12 and a change carbon button 22 which is a push button prepared in the core of a revolving dial 20 is formed.

[0011] In order to show the function, the alphabetic character of "Tv/Av" is printed by the top face of the change carbon button 22. In the camera of an example, whenever a push button 22 is pushed in, the function of a revolving dial 20 extracts as a setup of shutter speed, and is switched by turns between setup of a value.

[0012] The revolving dial 20 is inserted in the bore 26 of the circle configuration formed by penetrating the top face of a camera body 12 in the thickness direction to the decoration member 24 on a wrap free [rotation], as shown in drawing 2. The ring-like click plate 28 and the code plate 30 of the shape of a ring with a path smaller than this click plate 28 are being fixed to the field which becomes the drawing Nakashita side of a revolving dial 20.

[0013] Twelve click slot 28a is formed in the peripheral face of the click plate 28 at intervals of 30 degrees, and as shown in drawing 3, the click ball receptacle hole 32 which holds the click ball 34 in the condition which can counter click slot 28a is formed in the upper decoration member 24. The click ball 34 is energized with the spring 36 at the click plate 28 side. According to this click device, a revolving dial 20 is stopped, whenever it rotates 30 degrees, and an operator can recognize the halt location in every 30 degrees by the feeling of a click.

[0014] Crevice 20a of a flat-surface round shape is formed in the core of the top face of a revolving dial 20, and boss 20b of the cross-section round shape which penetrates this revolving dial 20 in the thickness direction is formed in the core of this crevice 20a.

[0015] The change carbon button 22 is formed in disc-like press control unit 22a which fits into crevice 20a, and this press control unit 22a at the same axle, and is formed in one from shank 22b inserted in boss 20b free [sliding] through a slide guide 38, and minor diameter shank 22c prolonged on the same axle from the tip of shank 22b.

[0016] In addition, on the substrate 48 in a camera body 12, the circuit changing switch 68 is formed in the location where tip 22e of minor diameter shank 22c contacts when the change carbon button 22 is pushed in, and the brushes 60, 62, and 64 in contact with the code plate 30 are formed further. The output signal from these brushes is transmitted to a control circuit through the flexible substrate 66.

[0017] As shown in drawing 4, the flat-surface section parallel to a revolving shaft was formed in the 2-way which counters, it is narrow, and 22d of level difference sections is formed in the tip side of minor diameter shank 22c. The other end of the stop plate 42 which is a stop means by which the end was fixed to the camera body 12 is engaging with 22d of this constriction level difference section, and the spring 40 further energized in the direction out of which escapes from the change carbon button 22 in the perimeter of minor diameter shank 22c from a revolving dial 20, and it comes to it is infixed between the stop plates 42.

[0018] As the stop plate 42 is shown in drawing 5, end face 42a is fixed to the inside of the upper decoration member 24, and the tip is formed in the shape of a hook so that slit slot 42b which engages with 22d of constriction level difference sections from the side may be formed. If slit slot 42b is narrow and it engages with 22d of level difference sections, while, as for the change carbon button 22, a variation rate is permitted in the range of the predetermined stroke to the direction of a revolving shaft, rotation of the circumference of a revolving shaft will be regulated.

[0019] The change carbon button 22 is sliding within the limits regulated with the stop plate 42 which engages with 22d of constriction level difference sections, and it is held elastically in the core of a revolving dial 20, being energized in the direction out of which always escapes from a revolving dial

according to the energization force of a spring 40, and it comes.

[0020] By this, also in case a revolving dial 20 is rotated, the change carbon button 22 can be maintained in the fixed direction to a camera body, and it can prevent the direction of the alphabetic character printed by the carbon button changing. Moreover, since the sliding range of the direction of a revolving shaft is regulated at both ends with the stop plate 42, as for the change carbon button 22, that omission omission is prevented does not have a possibility of damaging internal switch 68 grade from the first pushing in too much, either. In addition, although the two flat-surface sections are prepared in 22d of constriction level difference sections, in order to prevent rotation of the change carbon button 22, if it prepares in the 1st [at least] page, it is sufficient [the above-mentioned example] for the flat-surface section.

[0021] The code plate 30 fixed to the revolving dial 20 is constituted by covering the perimeter and forming regularly, the flow patterns 50 and 52 of two trains of a periphery and inner circumference in the disk formed by the insulator, as shown in drawing 6 . The flow pattern of each train is the sector of 15 degrees of central angles, sets spacing of 15 degrees and is prepared 12 pieces. While an inside pattern and an outside pattern have 7.5-degree phase contrast and connecting electrically mutually in the duplication part, all flow patterns are connected by the grand field 54 of the center section of the disk.

[0022] The 1st contact brush 60 prepared in the substrate 48 side is formed so that the outside flow pattern 50 and the 2nd contact brush 62 may contact the inside flow pattern 52 and an earth return brush 64 may contact the innermost grand field 54, respectively.

[0023] Where the click stop of the revolving dial 20 is carried out, the 1st contact brush 60 contacts in the center section for any of the 1st code terminal 50 being, the 2nd contact brush 62 is attached so that any of the 2nd code terminal 52 may be contacted on the side edge edge, and the location is specified.

[0024] According to the above-mentioned configuration, the rotation and hand of cut of a revolving dial 20 are detectable by seeing the timing of change of the flow relation between each contact brushes 60 and 62 and an earth return brush 64.

[0025]

[Effect of the Invention] As explained above, while becoming easy to check these relation by preparing a push button in the core of a revolving dial visually according to this invention, a configuration can be miniaturized rather than it prepares two members independently.

[0026] Moreover, while preventing the rotation by stopping a push button by the stop member, the successive range of shaft orientations is controllable.

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

TECHNICAL FIELD

[Industrial Application] This invention relates to the concrete structure of an information input unit of having especially a revolving dial, about the information input unit of the camera formed in order to set up information required for control of cameras, such as shutter speed and a diaphragm value.

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

PRIOR ART

[Description of the Prior Art] From the former, the information input unit which sets up information, such as shutter speed and a diaphragm value, by actuation of operating members, such as a revolving dial, is used, for example in the field of a single-lens reflex camera.

[0003] Moreover, if it prepares for every function to set up a revolving dial, the equipment which can extract for example, as a SHIYYATA rate and can be used also [setup / with a value] by switching the function of a single revolving dial with a change-over switch from a device becoming complicated is also used.

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, while becoming easy to check these relation by preparing a push button in the core of a revolving dial visually according to this invention, a configuration can be miniaturized rather than it prepares two members independently.

[0026] Moreover, while preventing the rotation by stopping a push button by the stop member, the successive range of shaft orientations is controllable.

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, since the revolving dial and the change-over switch are left and formed in the separate location and the operating member other than these switches is generally prepared to a camera, by operating which switch, as for the conventional information input device, it is unclear whether the function of a revolving dial can be switched, and it has the problem that operability is bad.

[0005]

[Objects of the Invention] This invention is made in view of the technical problem of the conventional technique mentioned above, and aims at offer of the information input unit of the camera which the relation of a revolving dial and the switch which switches that function tends to recognize visually.

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] This invention is characterized by providing the following in the information input unit of a camera in order to make the above-mentioned purpose attain. The revolving dial prepared possible [the rotation adjustment to a camera body] The press control unit located in the core of a revolving dial The push button with which it had the shank which connects with this press control unit and penetrates the core of a revolving dial in the direction of a revolving shaft of a revolving dial, and the parallel flat-surface section was formed at the tip of this shank with the revolving shaft at least at one side and which it was narrow, and the level difference section was formed, and was prepared in the direction of a revolving shaft free [frequent appearance] to the revolving dial A stop means to prevent rotation of the circumference of the revolving shaft of a push button in contact with the flat-surface section while an end is fixed to a camera body, and the other end is narrow, engaging with the level difference section and regulating the variation rate to the direction of a revolving shaft of a push button in the range of a stroke of a push button

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EXAMPLE

[Example] The example which applied the information input unit of the camera concerning this invention to the one eye reflex camera hereafter is explained based on a drawing.

[0008] Drawing 1 shows the appearance of the one eye reflex camera 10 concerning an example. The one eye reflex camera 10 concerning an example consists of a camera body 12 and a taking lens 14 attached in the camera body 12 removable.

[0009] While the Main slide switch 16 is formed in the one side of the top face of a camera body 12, the release carbon button 17 is formed in grip section 12a of the other side.

[0010] Behind the release carbon button 17, the information input unit 18 which consists of a revolving dial 20 prepared possible [rotation adjustment] to the camera body 12 and a change carbon button 22 which is a push button prepared in the core of a revolving dial 20 is formed.

[0011] In order to show the function, the alphabetic character of "Tv/Av" is printed by the top face of the change carbon button 22. In the camera of an example, whenever a push button 22 is pushed in, the function of a revolving dial 20 extracts as a setup of shutter speed, and is switched by turns between setup of a value.

[0012] The revolving dial 20 is inserted in the bore 26 of the circle configuration formed by penetrating the top face of a camera body 12 in the thickness direction to the decoration member 24 on a wrap free [rotation], as shown in drawing 2. The ring-like click plate 28 and the code plate 30 of the shape of a ring with a path smaller than this click plate 28 are being fixed to the field which becomes the drawing Nakashita side of a revolving dial 20.

[0013] Twelve click slot 28a is formed in the peripheral face of the click plate 28 at intervals of 30 degrees, and as shown in drawing 3, the click ball receptacle hole 32 which holds the click ball 34 in the condition which can counter click slot 28a is formed in the upper decoration member 24. The click ball 34 is energized with the spring 36 at the click plate 28 side. According to this click device, a revolving dial 20 is stopped, whenever it rotates 30 degrees, and an operator can recognize the halt location in every 30 degrees by the feeling of a click.

[0014] Crevice 20a of a flat-surface round shape is formed in the core of the top face of a revolving dial 20, and boss 20b of the cross-section round shape which penetrates this revolving dial 20 in the thickness direction is formed in the core of this crevice 20a.

[0015] The change carbon button 22 is formed in disc-like press control unit 22a which fits into crevice 20a, and this press control unit 22a at the same axle, and is formed in one from shank 22b inserted in boss 20b free [sliding] through a slide guide 38, and minor diameter shank 22c prolonged on the same axle from the tip of shank 22b.

[0016] In addition, on the substrate 48 in a camera body 12, the circuit changing switch 68 is formed in the location where tip 22e of minor diameter shank 22c contacts when the change carbon button 22 is pushed in, and the brushes 60, 62, and 64 in contact with the code plate 30 are formed further. The output signal from these brushes is transmitted to a control circuit through the flexible substrate 66.

[0017] As shown in drawing 4, the flat-surface section parallel to a revolving shaft was formed in the 2-way which counters, it is narrow, and 22d of level difference sections is formed in the tip side of minor

diameter shank 22c. The other end of the stop plate 42 which is a stop means by which the end was fixed to the camera body 12 is engaging with 22d of this constriction level difference section, and the spring 40 further energized in the direction out of which escapes from the change carbon button 22 in the perimeter of minor diameter shank 22c from a revolving dial 20, and it comes to it is infixed between the stop plates 42.

[0018] As the stop plate 42 is shown in drawing 5, end face 42a is fixed to the inside of the upper decoration member 24, and the tip is formed in the shape of a hook so that slit slot 42b which engages with 22d of constriction level difference sections from the side may be formed. If slit slot 42b is narrow and it engages with 22d of level difference sections, while, as for the change carbon button 22, a variation rate is permitted in the range of the predetermined stroke to the direction of a revolving shaft, rotation of the circumference of a revolving shaft will be regulated.

[0019] The change carbon button 22 is sliding within the limits regulated with the stop plate 42 which engages with 22d of constriction level difference sections, and it is held elastically in the core of a revolving dial 20, being energized in the direction out of which always escapes from a revolving dial according to the energization force of a spring 40, and it comes.

[0020] By this, also in case a revolving dial 20 is rotated, the change carbon button 22 can be maintained in the fixed direction to a camera body, and it can prevent the direction of the alphabetic character printed by the carbon button changing. Moreover, since the sliding range of the direction of a revolving shaft is regulated at both ends with the stop plate 42, as for the change carbon button 22, that omission omission is prevented does not have a possibility of damaging internal switch 68 grade from the first pushing in too much, either. In addition, although the two flat-surface sections are prepared in 22d of constriction level difference sections, in order to prevent rotation of the change carbon button 22, if it prepares in the 1st [at least] page, it is sufficient [the above-mentioned example] for the flat-surface section.

[0021] The code plate 30 fixed to the revolving dial 20 is constituted by covering the perimeter and forming regularly, the flow patterns 50 and 52 of two trains of a periphery and inner circumference in the disk formed by the insulator, as shown in drawing 6. The flow pattern of each train is the sector of 15 degrees of central angles, sets spacing of 15 degrees and is prepared 12 pieces. While an inside pattern and an outside pattern have 7.5-degree phase contrast and connecting electrically mutually in the duplication part, all flow patterns are connected by the grand field 54 of the center section of the disk.

[0022] The 1st contact brush 60 prepared in the substrate 48 side is formed so that the outside flow pattern 50 and the 2nd contact brush 62 may contact the inside flow pattern 52 and an earth return brush 64 may contact the innermost grand field 54, respectively.

[0023] Where the click stop of the revolving dial 20 is carried out, the 1st contact brush 60 contacts in the center section for any of the 1st code terminal 50 being, the 2nd contact brush 62 is attached so that any of the 2nd code terminal 52 may be contacted on the side edge edge, and the location is specified.

[0024] According to the above-mentioned configuration, the rotation and hand of cut of a revolving dial 20 are detectable by seeing the timing of change of the flow relation between each contact brushes 60 and 62 and an earth return brush 64.

[Translation done.]

*** NOTICES ***

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the top view showing the appearance of the one eye reflex camera which applied the example of the information input unit concerning this invention.

[Drawing 2] It is the sectional view in which it is shown near the information input unit of the camera of drawing 1.

[Drawing 3] It is the explanatory view of the click device of the equipment of an example.

[Drawing 4] It is the perspective view of a change carbon button.

[Drawing 5] It is the top view showing the configuration of a stop plate.

[Drawing 6] It is the top view showing the configuration of a code plate.

[Description of Notations]

18 Information Input Unit

20 Revolving Dial

20a Crevice

20b Boss

22 Change Carbon Button

22a Press control unit

22b Shank

22c Minor diameter shank

22d Level difference section

22e Tip

24 Upper Decoration Member

28 Click Plate

30 Code Plate

40 Spring

42 Stop Plate

42a End face

42b Slit slot

48 Substrate

[Translation done.]

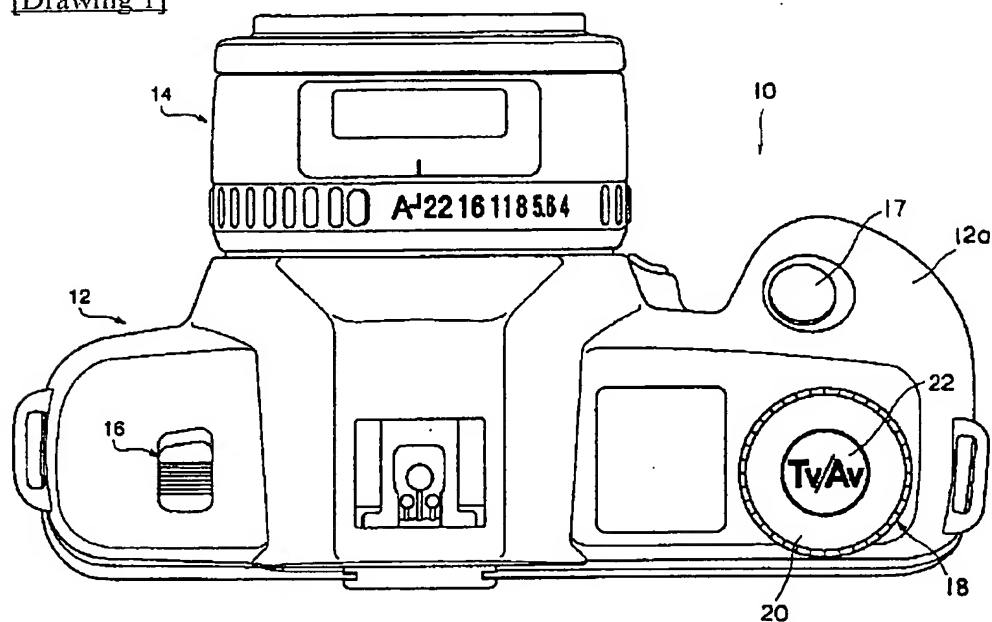
* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

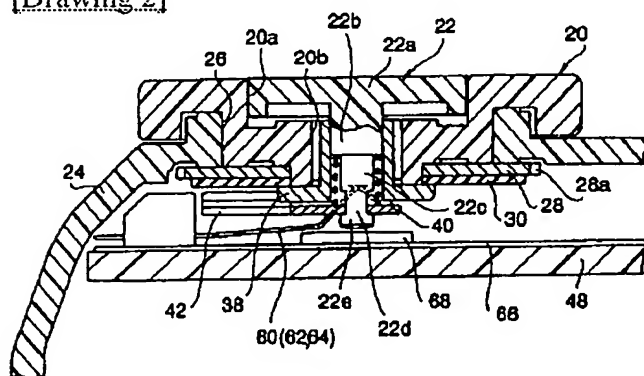
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

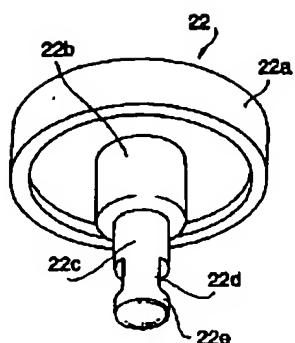
[Drawing 1]



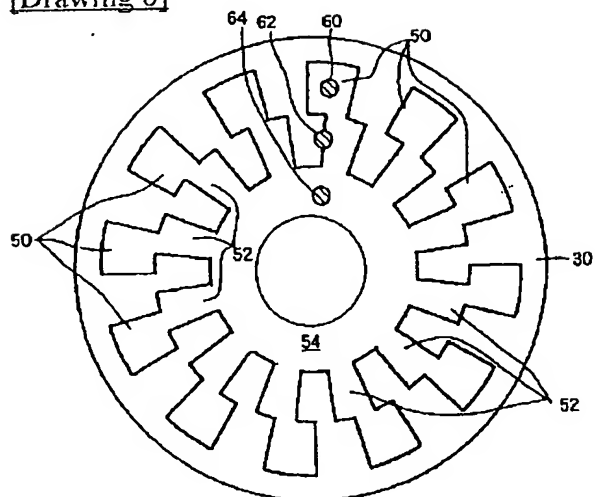
[Drawing 2]



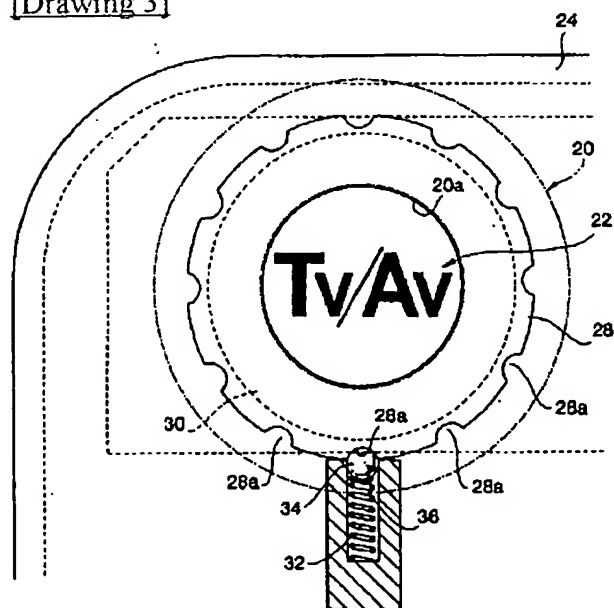
[Drawing 4]



[Drawing 6]



[Drawing 3]



[Drawing 5]